

AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the Application. The amendments are on the claims as they were written at the time of the Office Action mailed June 28, 2005. Deletions are ~~strikethrough~~ and additions are underlined.

1. (Currently amended) A method of encapsulation of ~~at least one islet cell encapsulated in a microcapsule~~ a microcapsule ~~encapsulating at least one islet cell~~ comprising the steps of:
 - a) creating a mix of ~~the at least one islet cell, encapsulated in a microcapsule, a microcapsule~~ encapsulating at least one islet cell in an aqueous macromer solution comprising macromer and photoinitiator;
 - b) forming small globular geometric shapes of the mix; and
 - c) polymerizing the macromer by exposing the geometric shapes to light radiation.

2-128. (Canceled)

129. (Previously presented) The method of claim 1, wherein the macromer is a water soluble, ethylenically unsaturated, polymer susceptible to polymerization into a water insoluble polymer through interaction of at least two carbon-carbon double bonds.

130. (Currently Amended) The method of claim 129, wherein the macromer is selected from the group consisting of ethylenically unsaturated derivatives of poly(ethylene oxide) (PEO), poly(~~ethyene~~ethylene glycol) (PEG), poly(vinyl alcohol) (PVA), poly(vinylpyrrolidone) (PVP), poly(ethyloxazoline) (PEOX), poly(amino acids), polysaccharides, and proteins.

131. (Previously presented) The method of claim 130, wherein the macromer is PEG tetraacrylate.

132. (Currently amended) The method of claim 130, wherein the polysaccharides are is selected from the group consisting of alginate, hyaluronic acid, chondroitin sulfate, dextran, dextran sulfate, heparin, heparin sulfate, heparan sulfate, chitosan, ~~gellan~~ gum, xanthan gum, guar gum, water soluble cellulose derivatives and carrageenan.

133. (Currently amended) The method of claim 130, wherein the proteins are is selected from the group consisting of gelatin, collagen, and albumin.

134. (Previously presented) The method of claim 1, wherein the photoinitiator is any dye that absorbs light having a frequency between 320 nm and 900 nm, can form free radicals, is at least partially water soluble, and is non-toxic to the at least one islet cell at the concentration used for polymerization.

135. (Currently amended) The method of claim 1, wherein the macromer solution further comprises a primary, secondary, tertiary, or quaternary amine cocatalyst and the photoinitiator is selected from the group of ethyl eosin, eosin Y, fluorescein, 2, 2-dimethoxy, 2-phenylacetophenone, 2-methyl, 2-phenylacetophenone, camphorquinone, rose bengal, methylene blue, erythrosin, phloxin, thionine, riboflavin, and methyl green.

136. (Previously presented) The method of claim 1, wherein the geometric shapes are formed by coextrusion of the aqueous macromer solution mixed with the biological material with a non toxic, non-immunogenic, non-miscible substance capable of maintaining droplet formation.

137. (Currently amended) The method of claim 1, wherein the microcapsule is comprised of material selected from the group consisting of hydrogel, alginate, chitosan, agarose, and gelatin.

138. (Previously presented) The method of claim 1, wherein the macromer solution further comprises an accelerator to increase the rate of polymerization.

139. (New) The method of claim 1, further comprising a step of coating the microcapsule with poly(L-lysine) before step a).

140. (New) The method of claim 1, wherein the islet is a human islet.

141. (New) The method of claim 1 further comprising;

before step a), the step of:

1). coating the microcapsule encapsulating at least one islet cell with a photoinitiator,

in step a) the aqueous macromer solution does not contain the photoinitiator before creating the mix of the microcapsule encapsulating at least one islet cell,

step b) is eliminated, and

step c) is modified by exposing the aqueous macromer solution to light radiation without first forming the geometric shapes.

142. (New) The method of claim 141, further comprising a step of coating the microcapsule with poly(L-lysine) before step 1).

143. (New) The method of claim 141, wherein the macromer is a water soluble, ethylenically unsaturated, polymer susceptible to polymerization into a waterinsoluble polymer through interaction of at least two carbon-carbon double bonds.

144. (New) The method of claim 143, wherein the macromer is selected from the group consisting of ethylenically unsaturated derivatives of poly(ethylene oxide) (PEO), poly(ethylene glycol) (PEG), poly(vinyl alcohol) (PVA), poly(vinylpyrrolidone) (PVP), poly(ethyloxazoline) (PEOX), poly(amino acids), polysaccharides, and proteins.

145. (New) The method of claim 144, wherein the macromer is PEG tetraacrylate.

146. (New) The method of claim 144, wherein the polysaccharide is selected from the group consisting of alginate, hyaluronic acid, chondroitin sulfate, dextran, dextran sulfate, heparin, heparin sulfate, heparan sulfate, chitosan, gellan gum, xanthan gum, guar gum, watersoluble cellulose derivatives and carrageenan.

147. (New) The method of claim 144, wherein the protein is selected from the group consisting of gelatin, collagen, and albumin.

148. (New) The method of claim 141, wherein the photoinitiator is any dye that absorbs light having a frequency between 320 nm and 900 nm, can form free radicals, is at least partially water soluble, and is non-toxic to the at least one islet cell at the concentration used for polymerization.

149. (New) The method of claim 141, wherein the macromer solution further comprises a primary, secondary, tertiary, or quaternary amine cocatalyst and the photoinitiator is selected from the group of ethyl eosin, eosin Y, fluorescein, 2, 2-dimethoxy, 2-phenylacetophenone, 2-methyl, 2-phenylacetophenone, camphorquinone, rose bengal, methylene blue, erythrosin, phloxine, thionine, riboflavin, and methyl green.

150. (New) The method of claim 141, wherein the geometric shapes are formed by coextrusion of the aqueous macromer solution mixed with the biological material with a non-toxic, non-immunogenic, non-miscible substance capable of maintaining droplet formation.

151. (New) The method of claim 141, wherein the microcapsule is comprised of material selected from the group consisting of hydrogel, alginate, chitosan, agarose, and gelatin.

152. (New) The method of claim 141, wherein the macromer solution further comprises an accelerator to increase the rate of polymerization.

153. (New) The method of claim 141, wherein the islet is a human islet.